

Appl. No. 09/915,082
Amdt. dated February 2, 2006
Reply to Office action of November 10, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A computer system, comprising:
a plurality of groups of computers, each computer capable of being in one of a plurality of power states, said groups of computers comprising at least a first group of computers and a second group of computers wherein the first group of computers performs a different function than the second group of computers; and
a load balancer and power management logic coupled to said groups of computers and to a network external to said computer system, wherein said load balancer and power management logic identifies a computer that is operating less efficiently than another computer in said first group of computers and, based on said transactions from said network, ~~changes the power state of~~ deploys the identified computer for use in the second group of computers instead of said first group of computers.
2. (Original) The computer system of claim 1 wherein said network comprises the Internet.
3. (Currently amended) The computer system of claim 1 wherein said load balancer and power management logic determines when an amount of transactions on said network drops below a threshold and when this occurs ~~changes the power state of~~ deploys said identified computer ~~to a state that uses less electrical power~~ for use in the second group of computers.
- 4.-7. (Canceled).

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8. (Previously presented) The computer system of claim 1 wherein said load balancer and power management logic identifies the computer that is operating less efficiently by considering how fast each of said computers responds to transactions.

9. (Currently amended) A computer system, comprising:
a load balancer computer having a connection to a network and receiving transactions from said network;
a master power management agent (PMA) coupled to said load balancer;
a plurality of transaction processing computers coupled to said load balancer computer and said master power management agent and receiving said transactions from said load balancer computer for processing, ~~each of said transaction processing computers having multiple power states~~said transaction processing computers configured into at least a first group of transaction processing computers and a second group of transaction processing computers and wherein the first group of transaction processing computers performs a different function than the second group of transaction processing computers;
wherein said master PMA causes the transaction processing computer within said first group of transaction processing computers that is determined to operate slower than another computer within said first group of transaction processing computers to change be deployed for use in said second group of transaction processing computers ~~from one power state to another power state~~ when the master PMA determines that a rate of transactions received by the load balancer from the network falls below a threshold.

10. (Canceled).

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11. (Currently amended) The computer system of claim 9 wherein said master PMA selects a transaction processing computer ~~to change its power state to be deployed for use in the second group of transaction processing computers~~ based on how fast the transaction processing computer responds to transactions from said load balancer.

12. (Previously presented) The computer system of claim 11 wherein each of said transaction processing computers reports how fast the transaction processing computer responds to said transactions to said master PMA.

13. (Original) The computer system of claim 11 wherein said load balancer monitors how fast each of said transaction processing computers respond to transactions.

14.-20. (Canceled).

21. (Previously presented) A data center, comprising:
a master power management agent (PMA) coupled to a first network;
a plurality of transaction processing computers coupled to said first network;
a load balancer computer having a connection to a second network over which the load balancer computer receives transactions and said load balancer is coupled to said first network over which said transactions are delivered to the transaction processing computers for further processing;
a management control console coupled to said first network and permitting a user to specify an upper limit for power usage by said data center and said master PMA maximizes a performance of the data center for a specified power limit by changing an operational state of a transaction processing computer that is determined to operate slower than at least one other transaction processing computer

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based on a level of transactions received by the load balancer from the second network.

22. (Canceled).

23. (Original) The data center of claim 21 wherein each transaction processing computer includes power control logic which provides power usage information to said master PMA.

24. (Previously presented) The data center of claim 21 wherein each transaction processing computer includes power control logic which can transition each transaction processing computer from one power state to another.

25. (Original) The data center of claim 21 wherein said master PMA transitions said transaction processing computers between power states, said power states selected from the group consisting of fully operational, reduced power and off.

26. (Previously presented) A data center, comprising:
a master power management agent (PMA) coupled to a first network;
a plurality of transaction processing computers coupled to first network;
wherein a user via a management control console can specify a performance criterion for said data center and said master PMA reduces an overall power usage of the data center for a specified performance criterion by causing a transaction processing computer, determined to be operating less efficiently than another transaction processing computer, to transition to a lower power consumption state.

27. (Original) The data center of claim 26 further including a load balancer computer having a connection to a second network over which the load balancer

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computer receives transactions and coupled to said first network over which said transactions are delivered to the transaction processing computers for further processing.

28. (Original) The data center of claim 26 wherein each transaction processing computer includes power control logic which provides power usage information to said master PMA.

29. (Previously presented) The data center of claim 26 wherein each transaction processing computer includes power control logic which can transition the transaction processing computer, determined to be operating less efficiently, from one power state to another.

30. (Currently amended) A method of managing power in a system comprising a plurality of computers organized into at least a first functional group and a second functional group, the method comprising:

monitoring a rate of transactions received from a network external to said system;

determining when said rate falls below a defined value;

identifying a computer within the first group that is operating slower than another computer in said first group; and

if said ~~parameter-rate~~ falls below the defined value, ~~changing a power state of~~ deploying the identified computer for use in the second group.

31. (Canceled).

32. (Canceled).

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33. (Previously presented) The method of claim 30 wherein identifying the computer comprises identifying the computer that performs transactions slower than all other computers as the computer for changing a power state.

34. (Canceled).

35. (Previously presented) A computer system, comprising:
a plurality of computers coupled together over a network, each computer capable of being in one of a plurality of power states; and
power management logic coupled to said computers and to said network, wherein said power management logic changes the power state of at least one of said plurality of computers that is determined to operate with less efficiency than another computer based on a protocol, said protocol including time sequences which specify permitted computer system power usage.

36. (Previously presented) The computer system of claim 35 wherein said protocol includes a time sequence in which computer system power usage is specified for certain periods of time and said power management logic adjusts the power state of said at least one computer determined to operate with less efficiency to conform with said time sequence.

37. (Previously presented) The computer system of claim 36 wherein said power management logic selects a computer to transition to a new power state based on a performance of said computer relative to other of said computers.

38. (Original) The computer system of claim 35 wherein said protocol includes a time sequence in which computer system power usage is specified for certain periods of time and a rule which specifies a limit of system behavior.

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39. (Original) The computer system of claim 35 wherein said protocol includes a time sequence in which computer system power usage is specified for certain periods of time, a rule which specifies a limit of system behavior and adaptive learning based on temporal performance of the computer system.

40. (Original) The computer system of claim 35 wherein said protocol includes maintaining the power draw of the system below a threshold while maximizing performance.

41. (Original) The computer system of claim 35 wherein said protocol includes maintaining the heat dissipation of the system below a threshold.

42. (Previously presented) The computer system of claim 35 wherein said protocol includes maintaining the heat dissipation of the system below a threshold while maximizing performance.